10. The method of claim 1, wherein the oligonucleotide is selected from the group consisting of a DNA phosphodiester, phosphorthioate, methylphosphonate, 2'-O-methyl RNA, 2'-O-alkyl RNA, 2'-O-methyl DNA, 2'-O-alkyl DNA and chimeras containing such structures.

11. The method of claim 1, wherein the oligonucleotide comprises nucleotide bases selected from the group consisting of 5'-methylcytidine, inosine, halogenated uridines, etheno-bases, dideoxynucleosides and inverted bases.

C2 concl'd

12. The method of claim 1, wherein the oligonucleotide comprises inverted 3'-5' linkages.

13. The method of claim 1, wherein the oligonucleotide comprises 5'-2' linkages.

14. The method of claim 1, wherein the oligonucleotide comprises about 2 to 100 nucleotides.

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20. A method of exchanging a cation associated with an oligonucleotide in a sample comprising:

(a) contacting the oligonucleotide associated with a first cation with a binding medium comprising a strongly hydrophobic base matrix selected from the group consisting of polydivinylbenzene, poly(styrene-divinylbenzene), polystyrene copolymers, polyethylene and polypropylene;

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(b) rinsing the oligonucleotide bound to the binding medium with an unbuffered aqueous solution prior to elution;

(c) contacting the bound oligonucleotide with a solution comprising a second cation; and

(d) eluting the oligonucleotide associated with the second cation from the binding medium, wherein the second cation effectively displaces the first cation in the eluted sample.

21. The method of claim 1, wherein the oligonucleotide is a monomer.
